## Rec'd PCT/PTO 16 JUN 2005 10/539900

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

#### (19) World Intellectual Property Organization

International Bureau



### 

(43) International Publication Date 1 July 2004 (01.07.2004)

**PCT** 

# (10) International Publication Number WO 2004/055794 A1

(51) International Patent Classification<sup>7</sup>: 7/135

G11B 7/125.

(21) International Application Number:

PCT/IB2003/050028

- (22) International Filing Date: 1 December 2003 (01.12.2003)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 02080364.9

18 December 2002 (18.12.2002) E

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): TUKKER, Teunis, W. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). HENDRIKS, Bernardus, H., W. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agent: VISSER, Derk,; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR,

CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

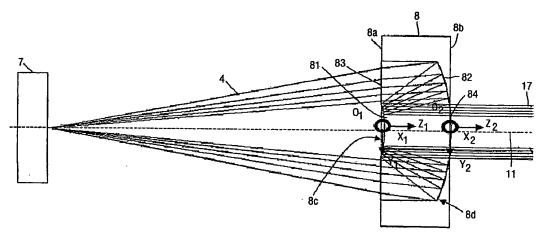
(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declaration under Rule 4.17:

as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG,

[Continued on next page]

(54) Title: OPTICAL SCANNING DEVICE



(57) Abstract: An optical scanning device (1) is for scanning an information layer (2) by means of a radiation beam (4). The device includes a radiation source (7) for supplying said radiation beam, an objective lens (10) for transforming said radiation beam into a scanning spot (19) at the position of the information layer, and a beam intensity modifier (8) for redistributing the intensity ( $I_2$ ) over the cross-section of said radiation beam in order to change the size of said scanning spot. The beam intensity modifier has an entrance pupil (8a) and an exit pupil (8b). Furthermore, it is arranged so that any ray of said radiation beam entering said beam intensity modifier at a distance  $r_1$  from the central ray of that beam reflects at least twice between said entrance and exit pupils such that the transverse magnification M of said modifier is defined by a decreasing function of the distance  $r_1$ .